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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/266,012	03/11/1999	YUKIO YAMAUCHI	0756-1947	5203

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EXAMINER	
RICHARDS, N DREW	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/266,012	YAMAUCHI ET AL.	
	Examiner	Art Unit	
	N. Drew Richards	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-9,12-14 and 19-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6-8 and 13* is/are allowed.

6)☒ Claim(s) *1-3,9 and 19* is/are rejected.

7)☒ Claim(s) *12,14,20 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/617121.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 19 recites "a thin film transistor formed in the island is used as a pixel driving device and a peripheral driving circuit device." The specification as originally filed does not describe, disclose, or enable using a single thin film transistor as a pixel driving device and a peripheral driving circuit device. The specification discloses having separate thin film transistors for the pixel driving device and the peripheral driving circuit device.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Moeller et al. (U.S. Patent No. 4,511,756).

Applicant's admitted prior art teaches on page 1 line 8 through page 2 line 4 an electroluminescence display device. The admitted prior art device comprises a thin film transistor formed over a substrate having an active layer of silicon including a source, drain, and channel region. The admitted prior art does not explicitly state that it is formed on a substrate having an insulated surface, however it is well known to one of ordinary skill in the art at the time of the invention to form thin film transistors on insulating substrates. The admitted prior art also teaches an electrode comprising aluminum electrically connected to one of the source and drain regions having a barrier metal interposed between the electrode and the source or drain region to prevent a direct contact therebetween. The admitted prior art also teaches a transparent electrode electrically connected to the thin film transistor and an organic electroluminescence layer adjacent to the transparent electrode. The admitted prior art does not teach forming a barrier metal of titanium.

Moeller et al. teach a method of forming aluminum on silicon. Moeller et al. teach a barrier metal layer between the aluminum and the silicon. Moeller et al. teach on line 4 of the abstract using a barrier metal comprising titanium. With respect to claim 3, Moeller et al. teach that the barrier metal contains nitrogen.

Applicant's admitted prior art and Moeller et al. are combinable because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to provide a barrier metal of titanium

nitride between the silicon source or drain and the aluminum electrode. The motivation for doing so is prevent diffusion of aluminum into the silicon source or drain region. Therefore, it would have been obvious to combine Applicant's admitted prior art with Moeller et al. to obtain the invention of claims 1 and 3.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art with Moeller et al. (U.S. Patent No. 4,511,756) as applied to claim 1 above, further in view of Tang et al. (U.S. Patent No. 5,550,066).

Applicant's admitted prior art with Moeller et al. teach forming a transparent electrode but do not disclose forming it of indium tin oxide. Tang et al. teach an organic EL display device which has an indium tin oxide transparent electrode. Tang et al. and Applicant's admitted prior art are from the same field of endeavor. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an indium tin oxide electrode as indium tin oxide (commonly referred to as ITO) is a well known and long established transparent conductor. Therefore, it would have been obvious to combine Applicant's admitted prior art and Moeller et al. with Tang et al. to obtain the invention of claim 2.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al. with Applicant's admitted prior art, and further in view of Moeller et al. (U.S. Patent No. 4,511,756).

With regards to claim 9, Tang et al. teach a device having a substrate with an insulating surface, a thin film transistor having an active layer comprising crystalline silicon including source, drain and channel regions, a transparent electrode electrically connected to the thin film transistor, an electroluminescence layer comprising an organic material adjacent to the transparent electrode, and a peripheral driving circuit comprising another thin film transistor formed over the substrate. Tang et al. do not teach an electrode comprising aluminum electrically connected to one of the source and drain regions and a barrier metal layer interposed between the electrode and the one of the source and drain regions to prevent a direct contact therebetween. This is taught by Applicant's admitted prior art to allow low resistance electrical communication with a diffusion barrier to prevent silicon diffusing from the active layer to the electrode. Neither Tang et al. nor Applicant's admitted prior art teach that the conductive layer comprises titanium. Moeller et al. teach using a titanium barrier as discussed above with regards to claims 1 and 3. At the time of the invention it would have been obvious to use the barrier layer of Moeller et al. to prevent diffusion of aluminum into the silicon source or drain region.

Request For Interference

7. Claim 19 of this application has been copied by the applicant from U. S. Patent No. 6,147,451. This claim is not patentable to the applicant because claim 19 is properly rejected under 35 U.S.C. 112, first paragraph.

An interference cannot be initiated since a prerequisite for interference under 37 CFR 1.606 is that the claim be patentable to the applicant subject to a judgement in the interference.

8. Claims 10 and 11 of this application is asserted by applicant to correspond to claim(s) of U.S. Patent No. 6,147,451.

The examiner does not consider this claim to be directed to the same invention as that of U.S. Patent No. 6,147,451 because claims 10 and 11 did not claim a single thin film transistor functioning as a pixel driving device and a peripheral driving circuit device. Accordingly, an interference cannot be initiated based upon this claim.

9. Claim 19 is rejected under 35 U.S.C. 135(b) as not being made prior to one year from the date on which U.S. Patent No. 6,147,451 was granted. See *In re McGrew,* 120 F.3d 1236, 1238, 43 USPQ2d 1632,1635 (Fed. Cir. 1997) where the Court held that the application of 35 U.S.C. 135(b) is not limited to *inter partes* interference proceedings, but may be used as a basis for *ex parte* rejections.

Allowable Subject Matter

10. Claims 6-8 and 13 are allowed.

11. Claims 12, 14, 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed 7/29/02 have been fully considered but they are not persuasive.

Upon further consideration, the rejection of claim 19 under 35 U.S.C. 102(e) has been withdrawn. Thus, applicant's arguments in regards to this rejection are moot.

With regards to claim 1 applicant argued that applicant's admitted prior art and Moeller et al. are not from the same field of endeavor. In response to applicant's argument, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Moeller et al. is considered in the field of applicant's endeavor as it is directed towards a semiconductor device and Moeller et al. is reasonably pertinent to the problem with which applicant was concerned, i.e. aluminum and silicon diffusing into eachother when in direct contact.

Applicant also argues that there is no reason to combine. This is not persuasive as the rejection clearly states the motivation of preventing aluminum from diffusing into the silicon.

Applicant also argues that the structure of Moeller et al. is different from that of the present invention and thus even if combined would not provide the present invention. This is not persuasive as Moeller et al. was not relied upon for the structure of the claimed invention, but merely to provide a barrier layer between the aluminum and the silicon.

With regard to claim 9, Applicant argues that the "peripheral driving circuit" is not taught by Tang et al. Applicant argues that the examiner's construction of the term "peripheral driving circuit" is inappropriate and incorrect. This is not persuasive as the first and second transistor of Tang et al. (TFT1 and TFT2) have been interpreted consistent with the transistors shown in figure 4 of the instant application. Figure 4 of the instant application shows first and second transistors (404 and 405) in each pixel where one transistor 405 controls the current to the electroluminescent device and the other transistor 404 sits on the periphery of transistor 405 and switches transistor 405, thus driving transistor 405. Transistor 404 is also connected to the X-direction and Y-direction peripheral drive circuits and is thus considered a part of the drive circuit. This interpretation in light of the arrangement shown in applicant's figure 4 is applied to Tang et al. in the rejection and thus the rejection is considered proper. Further, applicant has not distinctly pointed out how the interpretation used in the rejection is incorrect.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on M-F 8:00-5:30; Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NDR

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